

REMARKS

Reconsideration of the claims is respectfully requested.

Claims 1-39 are pending in the application. Claims 22-39 were withdrawn from consideration in response to a restriction requirement, but may be pursued in a related application. Claims 1-21 are rejected.

In the May 14, 2004 Office Action, the Examiner rejected Claims 1 and 2 pursuant to 35 U.S.C. § 102(b) as anticipated by Bates (U.S. Patent No. 3,768,000). Claims 3-12 were rejected pursuant to 35 U.S.C. § 103(a) as unpatentable over Bates in view of Dhyanchand et al. (U.S. Patent No. 5,177,460). Claim 13 was rejected pursuant to 35 U.S.C. § 103 (a) as being unpatentable over Bates in view of Dhyanchand et al., and further view of Piechnick (U.S. Patent No. 4,996,637). Claims 14-19 and 21 were rejected pursuant to 35 U.S.C. § 103(a) as unpatentable over Bates in view of Hayashi et al. (U.S. Patent No. 6,724,607) and Oppelt et al. (U.S. Patent No. 6,083,164). Claim 20 was rejected pursuant to 35 U.S.C. § 103(a) as unpatentable over Bates in view of Hayashi et al. and further in view of Dhyanchand et al.

Applicants respectfully request reconsideration of the rejections of Claims 1-21, including independent Claim 1. New Claims 40-41 have been added.

Independent claim 1 claims "outputting a transmit waveform having at least three different non-zero peak amplitudes from a first transformer in response" to the application of first and second voltage levels. Bates outputs a waveform with six different levels (E of Fig. 5). The output waveform is a summation of two different waveforms, each with two non-zero amplitude levels (bi-polar) (col. 4, lines 11-15; E1 and E2 of Fig. 5). Each of the component bi-polar waveforms is generated with a separate transformer (col. 3, lines 43-68; col. 4, lines 1-15; Figs. 3 and 4). Bates uses two transformers to generate a waveform with more than two non-zero amplitudes where each transformer outputs a bi-polar waveform. Bates does not suggest a waveform output by a transformer with at least three non-zero peak amplitudes in response to application of first and second voltages.

The dependent claims 2-21 and 40-41 depend from independent claim 1, and are thus also allowable for at least the same reasons discussed above. Further limitations of the

dependent claims distinguish from or are patentable over the cited references.

Claims 3-12 are allowable. Applicants respectfully submit that a person of ordinary skill in the art would not have used the separate flux paths of Dhyanchand et al. in Bates as suggested by the Examiner. The separate flux paths are used by Dhyanchand et al. to convert a variable frequency into a constant frequency (abstract; col. 2, line 63; col. 3, line 3). The flux paths allow for three-phase power (col. 3, lines 11-36; and col. 4, lines 5-17). Bates seeks to generate separate waveforms with controlled but variable phasing, and so uses two different transformers (col. 4, lines 1-9; Fig. 5). Applicants respectfully submit that Bates would not have used a summing transformer of Dhyanchand et al. given the purpose and circuit of Bates.

Regarding claim 6, Bates and Dhyanchand et al. do not suggest applying a ternary voltage to the transformer as claimed. Each transformer of Bates outputs a ternary voltage. The input of Dhyanchand is a sub-inverter output. There is no suggestion to reduce the voltage applied to the transformers to a ternary voltage.

Claim 9 claims connecting an untapped winding. The Examiner cited to transformers 4a, 4b of Bates, both of which are tapped windings.

Claim 10 claims applying different voltages to different windings and flux paths of a same transformer. Bates applies the voltages to different transformers.

Claim 13 is allowable. The Examiner relies on Piechnick et al. for suggesting at least 8 non-zero voltage levels. However, there is no teaching to use this suggestion with Bates or Dhyanchand et al. Since Dhyanchand et al.'s summing transformer would not have been used with Bates, claim 13 is allowable for a further reason.

Claims 14-21 are allowable. Hayashi et al. provide elements in an annular ring (Fig. 13). Transformers are used to generate waveforms with a set relative phasing for the different elements of the ring (Figs. 1 and 2). The transformers are used for generating waveforms for different elements with different phasing. Bates combines the output of the transformers into a single waveform. The circuit of Bates would not have been used with the actuators of Hayashi et al.

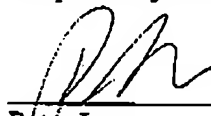
Claim 18 claims transformers with different maximum numbers of states. Bates uses two transformers, each operating in three different states.

Claim 21 claims base four control. Dhyanchand et al. do not use control signals, but merely convert any input voltage from a generator.

CONCLUSION:

Applicants respectfully submit that all of the pending claims are in condition for allowance and seeks early allowance thereof. If for any reason, the Examiner is unable to allow the application but believes that an interview would be helpful to resolve any issues, he is respectfully requested to call the undersigned at (650) 943-7350 or Craig Summerfield at (312) 321-4726.

Respectfully submitted,



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